A Science Service Feature

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? WHY THE WEATHER ? Mailed September 17, 1931

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HOW HOT DO THINGS GET IN SUNSHINE?

The surface of an object exposed to the sun's rays -- say, a piece of steel in a bridge, or a section of asphalt pavement, or the leaf of a tree -- acquires a temperature that, as a rule, differs widely from the temperature of the surrounding air. The temperature acquired depends upon a number of things besides the intensity of insolation; including the nature of the material, the quality and color of its surface, the inclination of the surface to the sun's rays and the strength of the air currents blowing past it.

Strange to say, only meager and fragmentary information has hitherto been collected as to how hot various things get in sunny weather in any particular part of the world, though the matter is of great interest to engineers, biologists and others. One of the few investigations in this connection was that of H.G. Cornthwaite, who measured the temperatures attained by exposed steelwork at Balboa Heights, in the Canal Zone, during the month of April. Small blocks of steel painted various colors were placed in the sun but sheltered as far as possible from the cooling influence of the wind. The temperature was measured at frequent intervals by placing a thermometer bulb in a half-inch hole drilled in the center of each block, the hole being filled with mercury.

The highest temperature attained by the steel was 133 Fahrenheit, at 3:30 p.m. on April 26; and the author estimated that 140 Fahrenheit was the maximum likely to be reached at any time in that locality. The highest air temperature recorded at Balboa Heights in April during a 20-year period was 97. The maximum difference between white and black painted steel during the series of observations was 20 degrees, the black, of course, acquiring the higher temperatures, while steel painted red, green, etc., acquired intermediate temperatures.

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